REMARKS

Applicant has amended the priority claim of the specification to include Swedish Application No. 9401928-8, filed June 3, 1994, and Swedish Application No. 9304209-1, filed December 20, 1993. Applicant submits that the Swedish applications were unintentionally left out of the priority claim in the specification. Furthermore, Applicant's intent to claim priority in the original application is clearly evident from official filing receipt, mailed on September 26, 2000, which lists both Swedish priority applications. Enclosed are a copy of the Swedish priority applications and a copy of the filing receipt.

Claims 23, 27, 34, 44, and 83-91 are pending in this application of which claim 23 is independent. Claims 85-91 are new.

Turning to the art rejections, claim 23 was rejected under 35 U.S.C. 103(a) over International Application Publication WO94/13334 in view of Gaffar (U.S. 4,024, 679). Claims 27 and 34 were rejected under 35 U.S.C. 103(a) over WO94/13334 in view of Gaffar and Suzuki (U.S. 4,746,532). Claims 44, 83, and 84 were rejected under 35 U.S.C. 103(a) over WO94/13334 in view of Gaffar and the admitted prior art (a paper by Damen, Ten Cate, and Ellingsen, herein referred to as the "Damen paper").

Initially, Applicant notes that the publication date (June 23, 1994) of the reference WO 94/13334 is later than the filing dates of the Swedish priority applications (June 3, 1994 and December 20, 1993). The limitations of the claims that the Examiner alleges are taught by WO 94/13334 are described in either one or both of the Swedish priority applications. Therefore, WO 94/13334 is not prior art to the application. Accordingly, withdrawal of the rejections based on the reference WO 94/13334 is respectfully requested.

Before discussing how Applicant's claims distinguish over the other prior art cited by the Examiner in this office action and prior office actions, it may be helpful to the Examiner if Applicant addresses some general points concerning the treatment process of the metallic bone implant.

The treatment process, as recited in the claims, is believed to improve biocompatibility (i.e., the rate of bone tissue attachment and the strength of bone adhesion) of the implant. The

improvement is believed to be due to the presence of fluorine and/or fluoride on the surface of the metallic implant. Support for this assertion can be found in the Applicant's specification at least on page 4, line 29 to page 4, line 7, and page 5, lines 21-25. The improved biocompatibility of the implant is believed related to the chemical characteristics of the implant surface. As described in the specification on page 5, lines 12-16, no morphological effect on the implant surface is sought by the process described in the claims.

The following paragraphs address some of the prior art references that has been cited by the Examiner in the current office action and/or in previous office actions.

US 4,042,679 – Gaffar

Gaffar is directed to an antibacterial oral composition to be applied to dental enamel. While Gaffar's composition is disclosed to include fluoride ions that can be derived from various fluoride-providing compounds, there is nothing in Gaffar that discloses or suggests applying the composition to a metallic implant.

US 4,746,532 – Suzuki

Suzuki discloses applying a ceramic coating to a metal oxide implant and gives several examples of ceramic materials, some of which contain calcium phosphate, and some of which do not contain calcium phosphate. Suzuki, however, neither discloses nor suggests treating an implant having a ceramic coating with fluoride ions.

US 5,039,546 – Chung

Chung neither discloses nor suggests the features of claim 23, particularly with respect to treating, with an aqueous solution of fluoride ions, a metallic bone implant having no calcium-phosphate-containing coating. Rather, Chung describes applying a fluoride treatment to a dental implant having a coating that contains calcium phosphate. For example, in col. 4, lines 7-13, Chung describes that:

> **the process of the present invention, as noted above, is particularly useful to treat HA ceramic or other calcium phosphate ceramic coated metal substrates, although the invention can be used with other coatings, such as tricalcium**

phosphate, tetracalcium phosphate or other calcium phosphate ceramic coatings and mixtures thereof, such as mixtures of calcium phosphate and HA with noncalcium phosphate ceramics, metals or alloys.

The examples of coatings described in the above passage and elsewhere in Chung all contain calcium phosphate. Nowhere, does Chung disclose or suggest treating, with an aqueous solution containing fluoride ions, a metallic bone implant having no calcium-phosphate-containing coating. Furthermore, there is nothing in Chung that discloses or suggests that the fluoride treatment affects the biocompatibility of the metallic implant itself. Rather Chung, in col. 2, lines 21-29, suggests that the fluoride treatment is performed to increase the strength and lifetime of the calcium phosphate coating.

JP 3146679 – Haruyuki

Haruyuki neither discloses nor suggests the features of claim 23, particularly with respect to treating the metallic bone implant with an aqueous solution, other than hydrofluoric acid, containing fluoride ions in a concentration of greater than 0% and up to 3%. Haruyuki, rather, discloses using a solution of 1% to 6% hydrofluoric acid as a pretreatment to remove contaminants from the surface of an implant and to obtain a desired surface roughness and/or pore size. Furthermore, there is nothing in Haruyuki, either explicitly stated or implied, that suggests that any other solution including fluoride ions other than hydrofluoric acid would be affective as a pretreatment or for obtaining a desired surface roughness.

With regard to claim 92, according to page 3, col. 1 of Haruyuki, only the morphological surface structure (i.e., pore size) of the implant has a significant impact on the bone adhesion. Thus, a person of ordinary skill would, based on the teachings of Haruyuki, have no reason to believe that any other surface characteristic other than the morphological structure of the implant would have any significant effect on the implant-bone adhesion or rate of attachment to bone tissue. Haruyuki gives no guidance whatsoever regarding any chemical alteration of the implant surface, and in particular no clue regarding retaining of fluoride ions on the surface.

Damen paper

The Damen paper does not disclose any of the features of claim 23.

With regard to claim 44, the Damen paper neither discloses nor suggests treating the implant with a solution comprising calcium ions to further improve the biocompatibility of the implant. Rather, the calcium-ion treatment disclosed in the Damen paper is used to determine the biocompatibility of the implant. The Damen paper is silent as to whether the calcium ions applied in the biocompatibility test could also be used to improve the biocompatibility of the implant.

For the foregoing reasons, independent claim 23 is patentable over the prior art. Claims 27, 34, 44, and 83-91 depend on claim 23, and therefore they are patentable for at least the same reasons for which claim 23 is patentable.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claims, except as specifically stated in this paper, and the amendment of any claims does not necessarily signify concession of unpatentability of the claim prior to its amendment.

The prior art cited but not applied by the Examiner is seen as neither describing nor suggesting Applicant's invention whether taken separately or in combination with the art applied.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance, and such action is respectfully requested.

Enclosed is a check in the amount of $790.00 for the RCE fee and a $1020.00 check for the three-month Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney Docket Number 14395-199001.

Respectfully submitted,

Date: 12/13/01

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